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A FIRM STAND FOR THE QUAKING ASPEN

Gordon Gullion, a wildlife ecologist, staunchly believes the lowly aspen is the salvation of the ruffed grouse

by ***ROBERT F. JONES***

Since colonial times, upland bird hunters have worried themselves sick at least once every decade over the imminent disappearance of the ruffed grouse. Back in 1754 the bird seemed to be just about gone from Pennsylvania. In 1832 the good countryfolk of New Hampshire scratched their pates over the sudden lack of "pa'tridge." The boys in blue returning to New York State after the Civil War found grouse as hard to corner as Bedford Forrest's cavalry. In the 1920s, when grouse "crashed" disastrously in New England, a crusty old market hunter named Fred Bucklin blamed it on the chestnut blight. In peak years Bucklin had killed 350 birds a season, selling them for $1.50 a brace. Now he lamented, "I wish I could put them back in the trees the way they were . . ."

Well, it looks as if we can.

For most of this century, hunters and wildlife managers alike have recognized a 10-year cycle of ruffed grouse. In Minnesota, for instance, the birds tend to peak in years ending with zero, one or two. They hit their low in years ending in four, five and six. In between, they are either on their way up or back down. Though the data is meager, there seems to be a continental rhythm to the cycles as well. The ruff is our most widely distributed non-migratory game bird, occurring in 38 states and 13 Canadian provinces ranging from Labrador down to California and from the Yukon basin to northern Alabama. Declines seem to begin in the far northwest and northeast of the bird's range and then angle slowly southward toward the middle of the continent. Recoveries follow the same route. Currently, the southern half of New England, along with much of New York, New Jersey and eastern Pennsylvania, is in the grip of a low that began six or seven years ago. The upper Middle West—heartland of the ruff's range—is just beginning a recovery from a decline that started in 1971-72. Still, the lows keep getting lower, while recoveries never reach as high as the last one.

Theories to explain the cycle probably began in Pilgrim times. They run from sunspots to A-bomb tests, from "those newfangled auty-mobiles" to competition with other game birds, such as the ring-necked pheasant, introduced from abroad. Most of the theories, though, are just so much grouse feathers. No one has devoted as much time and thought and just plain hard, cold work to the subject as Gordon Wright Gullion, 54, an associate professor of wildlife management at the University of Minnesota and leader of the school's Forest Wildlife Relations Project at Cloquet, Minn., just west of Duluth. Gullion also serves as Projects Committee chairman for the Ruffed Grouse Society, a 4,000-member group with headquarters in Coraopolis, Pa. After 19 years of study, two full cycles' worth, Gullion believes he can dampen the severity of one cycle so that it will appear on a graph as a mere ground swell rather than the steep zigzags of the past. If so, it would be the greatest boon to grouse gunners since the invention of powder and the pointing breeds.

The key, according to Gullion, is that lowly tree, the aspen. Using a program of rotational clear-cutting in 1,100 aspen-dominated acres of the Cloquet Forest Center, Gullion has been able to produce population densities of one breeding bird per three acres. During the recent Minnesota "crash," his woods were full of birds: in the fall hunting season he achieved one grouse per acre. Since a density of one grouse to each 10 acres is considered high elsewhere in North America, that amounts to bird hunter's heaven. What's more, in this age of soaring wood prices, the game manager or hunting-club director who employed Gullion's methods could count on a profit of as much as $100 an acre for pulp and hardwood in addition to the sporting benefit.

"The secret is feeding efficiency," says Gullion. "We've timed ruffs during the winter when they're feeding almost exclusively on male aspen flower buds. One grouse can tuck away 100 grams of buds in 15 minutes. That's like a 150-pound man eating 27 pounds of food at one equivalent sitting." Earlier researchers stressed the catholicity of the grouse's feeding tastes. The crops of killed birds were found to contain a lengthy grocery list of goodies: buds of willow and oak, catkins of hazel, ironwood, alder and birch; the fruits of wild rose, dogwood and apple and a wide range of berries; mushrooms; the poisonous leaves of laurel and rhododendron; even insects, salamanders and on one occasion, a small garter snake. But Gullion's research has shown that these foods, especially in the cold depth of winter, are merely *hors d'oeuvres* and dessert.

"The ruffed grouse is not a catholic feeder by choice," he insists. "It is not an adaptable bird. When aspen is missing from the range, a bird must spend two or three hours to fill up on these other items, rather than a quarter of an hour on aspen. That's much more time out in the open, where predators are

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When the rest of Minnesota suffered a "crash" recently, Gullion's woods were full of grouse.

hunting. And much more time in the cold. Each time it lifts that wing, it's losing heat. Where aspen is present and snow is an important part of the winter ecology, the ruffed grouse is an aspen-dependent bird."

Not only do mature aspens provide gourmet winter dining for the birds, but aspens of all ages offer something of value to a grouse at every stage of the bird's life. Aspens up to 10 years old grow thick and close—a plant per square foot—and are the preferred habitat for growing birds. Aspens from 10 to 30 years old serve as drumming and breeding cover and also provide good winter protection in years of light snow. And, of course, a stand of mature aspens (the tree can live from 40 to 60 years) is restaurant row.

Aspens are "clones" of an extensive root system that can be as old as 10,000 years. A root system can live almost indefinitely, so long as one tree is associated with it. Left to its own devices, or occasionally cut back, a system will respond with heavy sucker growth and new vigor.

Over the years, Gullion and his associates have experimented with different sized clear-cuts to see which the birds prefer. The answer: nothing smaller than one acre, nor larger than 10. Working with a hypothetical 40-acre tract, Gullion would cut a different acre each year. After five years, bird populations would increase dramatically, and by the end of 40 years one could count on nearly a bird an acre. From that point on, if the rotation were continued, the boom-or-bust nature of the insidious grouse cycle should be broken.

Or so the evidence at Cloquet would indicate. Gullion operates out of a small log cabin tucked away at the edge of the five-square-mile Forest Center he shares with "the tree guys." Cloquet itself is a pleasant mill town distinguished mainly by the only gas station ever designed by Frank Lloyd Wright—an eye-boggling rendition with a soaring roof cantilevered over the Phillips 66 pumps. "Mr. Ruffed Grouse," as Gullion is known in the game-management field, is aptly named. He actually resembles the bird he has studied so long—short and close-coupled, with a slight downturn at the end of his beak, a strong pouter-pigeon chest, bright eyes and even a ragged comb of mottled, gray-phase hair. He walks with a grousey strut.

"It'll be dark in an hour or so," he said on a recent wintry afternoon. "Just the right time to spot some feeding birds." Placing a grouse tail feather in the book he was reading—the cabin has as many feathers as it does books—he pulled on his boots and parka. Winding along the narrow tote roads in his four-wheel-drive pickup, he pointed out the difference between the two species of aspen at Cloquet. "That stand over there is *Populus tremuloides*—quaking aspen. It's paler than *P. grandidentata*, what we call Bigtooth." The Bigtooth stands had an olive tint to them, quite distinct from the pale gray quaking aspen. Both trees are rare these days in the overmature woodlots of the Northeast and, where they do exist, are often scorned as mere "weed trees."

Gullion has spent 19 years studying his favorite bird.

Gullion parked near a drumming log—the log on which a cock grouse "drums" his wings during his courtship ritual and asserts his authority—and we walked in through the eight-inch-deep snow. The log itself was so far gone with decay and moss that it looked like an ancient burial mound. "This log has had nearly continuous use since 1931," said Gullion, producing a whisk broom and sweeping the snow carefully from the top. "Aha! He's been back." Gullion pointed to a sprinkling of brown pellet-like droppings near the center of the log. "I was afraid we might have lost him. A male ruff will live about two years in the wild, though we've had a few last as long as eight. He'll spend about 6% of his life on the drumming log, summer and winter. It's the safest place in the world for him. He's sitting still and his enemies are on the prowl, looking for supper." He pointed out the well-trodden "escape lanes" leading at 90-degree angles away from the log. "If the aspen suckers are thick enough around the log, the way they are here, it's virtually impossible for an owl or a hawk to nail him."

The principal grouse predators are horned owls and the goshawks. Along with barred owls and Cooper's hawks, they account for more than 80% of the kills Gullion has studied at Cloquet Forest. Foxes, weasels, skunks, dogs and cats (both bob and house) account for the balance, though their major damage is to nests and fledgling birds. A mature grouse is too quick for most mammals. Interestingly, though he does not hunt, Gullion believes that human predation in the form of gunning has little or no effect on healthy grouse populations.

"Predation is pretty much a constant," he said, heading back to the truck. "You can generally figure that owls and hawks and varmints will kill 70% of the birds during the course of a year. Still, you're left with a strong breeding population come spring. But there are times when we get a sudden invasion of predators from the north."

Just such an avian D-day took place in the mid-1940s. In 1942 central Can-

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ada was teeming with snowshoe hares (as many as 10,000 were estimated on a 1½-acre tract). Grouse were abundant, too, so thick in Alberta that four poachers killed and canned 2,000 birds in a single week, selling them to troops stationed nearby. Then, unaccountably, the hare and grouse populations went thump. By 1944 it seemed there were none left. Their numbers swollen by the feeding boom, owls and hawks swept southward, putting their claws to small game of all sorts in the upper Middle West. The result was one of the worst grouse crashes the Great Lakes states have ever known.

"The oversupply of raptors cut into the normal supply of grouse breeding stock," Gullion said. "It took a long time to build up again. But even in a situation like that, there are ways to save the stock. You've got to get rid of the predator cover—the brush piles and slashings on the forest floor that provide horizontal hideouts for foxes and weasels and the like. Controlled burning not only decreases horizontal cover, it also accelerates nutrient recycling. But mainly it benefits the grouse to thin out vertical cover—the stands of pine and spruce and other conifers used by the owls and hawks. They sit up there and wait for a feeding grouse to come by. Then, whap—free lunch."

This sounds like heresy; other grouse managers to a man recommend stands of conifers in a hardwood forest as prime grouse cover. The conifers, they feel, provide protection for roosting grouse from winter winds, particularly when there is not enough snow on the ground (at least six to eight inches) for the birds to burrow in for the night. But Gullion is adamant. "This could get me in trouble," he says. "If I had my way, I'd cut every pine and spruce out of this forest. But the forestry and agriculture guys won't let me. Some years ago, the New York State conservation people tried to increase grouse populations by means of a pine planting program. It didn't work, and they gave it up. I can see why."

After visiting other drumming logs, aspen clones of varying ages and trapping sites (Gullion livetraps 150 to 300 birds a year for study, banding and release), he headed the truck back toward the cabin. By now it was almost dark. Rounding a bend, he eased the pickup to a halt and pointed ahead.

"Look at them!"

High in the swaying aspens, balancing like aerialists against a gunmetal sky, four grouse were eating buds. Gullion stopped and opened a window. The sound of the feeding birds resembled a gang of teenagers popping their bubble gum. Then, after some five minutes, they puffed their feathers and took off to roost. The chainsaw rip of their wings in flight brought a grin to Gullion's weathered face. "Dammit, don't you love them?"

Later that evening, Gullion expounded further on his favorite subject. His personal drumming log is actually a tidy suburban home on the outskirts of Cloquet. Except for a book on irises and a novel or two, the shelves are devoted to the order Galliformes, of which the ruffed grouse (*Bonasa umbellus*) is Gullion's king. The works of Paul Johnsgard, Gardiner Bump, George Bird Evans and Frank Woolner (whose *Grouse and Grouse Hunting* is the definitive hunter's guide) are all there. From another wall gleams a fine watercolor of two ruffs, male and female, by Don Whitlatch. The room is a shrine to grousedom.

"When you talk about the grouse cycle," Gullion said, "you are talking about the interaction of four or maybe five factors. The first and most important is aspen—both the quantity and the quality of the existing stands. The second is weather—plenty of soft snow means higher winter survival. The third is predation, and the fourth is the prevalence of disease and parasites in the grouse population. A cold, snowless winter combined with a high rate of sickness and parasite infestation can weaken birds so that they cannot mate in the spring, or, if they mate, cannot produce strong young. Still, if there are plenty of mature male aspens nearby, a grouse can handle both of those threats. If the predator cover is removed, or kept far away from the wintering grounds, the grouse has a better-than-even chance to make it through the winter. Let the owls and foxes eat squirrel.

"The possible fifth factor—and we're just getting into it now—is an intrinsic hereditary characteristic related to ruffed grouse color phases. There are two phases—gray and red. The gray-tailed birds survive the winter, according to our records, much more successfully than the reds. In fact, the red birds live only two-thirds as long as the grays. Protective coloration doesn't seem to have anything to do with it. When the winters are favorable and there's plenty of food, the reds increase in numbers, but they're the first to drop off when the going gets tough again. Just why, we don't know.

"The main thing is, there's nothing we can do about the weather. Predator control programs have never worked in the history of forest game management, not 100%, and they cost too much. Disease and parasitism are endemic in the grouse population, and I can't imagine going around worming or inoculating every bird in the forest. As for the color thing, that remains to be worked out. But we *can* do something about the food supply. We can cut aspen stands on a rotational basis and provide a constant supply of food, along with good cover and breeding sites, and make money doing it. When you look at a map, you see that the aspen ecosystem provides the basic habitat resources in a quarter of the forested land north of Mexico. It takes care of moose, deer, elk, beaver, snowshoe hares, black bears, timber wolves, woodcock and many other bird species, as well as the ruffed grouse. I've gutted deer up in Nevada whose stomachs were packed with new-fallen aspen leaves. It's an invaluable tree, and we're only now beginning to appreciate it. It's certainly the key to the grouse problem."

It should be noted that many grouse men—hunters and scientists alike—disagree with Gullion's insistence on aspen as being critical to the bird's welfare. One dissenter, ironically, is Mark Rutledge, a veteran grouse gunner and a director of the same Ruffed Grouse Society to which Gullion offers his services. Rutledge argues that catkins of the hop hornbeam, commonly known as ironwood, are just as important a winter food supply. On a recent hunt with him in Crawford County, south of Erie, Pa., this writer watched as Rutledge emptied the crops of two birds killed that afternoon. Though mature male aspens were all around, the crops were packed with the rusty worm-like catkins of hop hornbeam, a heaping handful from each bird. "Look at this," said Rutledge pointing upward. "There's wind high in the aspens all around us. These birds didn't want to get their feet cold, so they fed down here in this low stuff. Happens all the time around here in the late season." Provocative, perhaps, but two birds do not a scientific study make. **END**